

This listing of claims replaces all prior versions, and listings, of claims in this application.

1. (Original) An inspection method comprising:

forming, at a surface of the substrate, first and second reference patterns corresponding respectively to said first and second pattern components;

deriving, from said reflection spectra, information indicative of at least one parameter of said test pattern.

3. (Original) The inspection method according to claim 1, wherein said at least one parameter includes overlay error.

4. (Original) The inspection method according to claim 1, wherein said at least one parameter includes comatic aberration.

5. (Original) The inspection method according to claim 1, wherein said first and second pattern components differ in form.

6. (Original) The inspection method according to claim 5, wherein said at least one parameter includes asymmetry.

7. (Original) The inspection method according to claim 5, wherein said test pattern comprises a two-bar grating pattern having an inner pitch and an outer pitch, and

wherein said first and second reference patterns comprise respectively a single bar grating having a pitch equal to the inner pitch and a single bar grating having a pitch equal to the outer pitch.

8. (Original) The inspection method according to claim 1, wherein said forming a test pattern comprises:

forming said first pattern component in a first process layer provided on the substrate;
and

forming said second pattern component in a second process layer provided on the substrate and different from the first process layer.

9. (Original) The inspection method according to claim 8, wherein said first and second pattern components are substantially identical in form.

10. (Currently Amendment) An inspection method comprising:
forming, at a surface of a substrate, a test pattern comprising a combination of first and second pattern components, said first pattern component being different from said second pattern component;

forming, at a surface of the substrate, first and second reference patterns corresponding respectively to said first and second pattern components;

measuring a reflection spectrum of said test pattern, a reflection spectrum of said first reference pattern, and a reflection spectrum of said second reference pattern; and

deriving, from said reflection spectra, information indicative of at least one parameter of said test pattern,

wherein said forming a test pattern comprises:

forming said first pattern component in a first process layer provided on the substrate; and

forming said second pattern component in a second process layer provided on the substrate and different from the first process layer, The inspection method-
according to claim 8,

wherein said test pattern comprises first and second alignment markers printed one above the other, one in the first process layer and the other in the second process layer, and

wherein said first and second reference patterns comprise corresponding reference alignment markers printed in the corresponding process layers, respectively, but not overlaid.

11. (Original) The inspection method according to claim 1, wherein said deriving comprises:

constructing representations of said first and second reference patterns, based on said reflection spectra of said first and second reference patterns; and

constructing a representation of said test pattern, based on said representations of said first and second reference patterns.

12. (Original) The inspection method according to claim 1, wherein said deriving includes obtaining said information directly from said reflection spectra without constructing a representation of the test pattern.

13. (Original) The inspection method according to claim 1, wherein said deriving includes applying the reflection spectrum of at least one of the first and second test patterns to increase a signal strength of the reflection spectrum of the test pattern.

14. (Original) The inspection method according to claim 1, wherein said measuring includes using a scatterometer.

15. (Original) The inspection method according to claim 1, wherein said measuring includes using a normal incidence scatterometer.

16. (Original) A device manufacturing method comprising:
providing a substrate that is at least partially covered by a layer of radiation-sensitive material;
providing a projection beam of radiation using a radiation system;
using patterning structure to endow the projection beam with a pattern in its cross-section;
projecting the patterned beam of radiation onto a target portion of the layer of radiation-sensitive material to form at a surface of the substrate (1) a test pattern comprising a combination of first and second pattern components, said first pattern component being different from said second pattern component, and (2) first and second reference patterns corresponding respectively to said first and second pattern components;
measuring a reflection spectrum of said test pattern, a reflection spectrum of said first reference pattern, and a reflection spectrum of said second reference pattern; and
deriving, from said reflection spectra, information indicative of at least one parameter of said test pattern.

17. (Original) The device manufacturing method according to claim 16, wherein the patterned beam of radiation includes a representation of a process layer, and

wherein the test pattern is formed in an area adjacent to an area irradiated by the representation of the process layer.

18. (Original) The device manufacturing method according to claim 17, wherein the test pattern is printed in a scribe lane.

19. (Original) The device manufacturing method according to claim 16, said method further comprising:

adjusting at least one of a parameter of the lithographic apparatus or a production process according to said information;

subsequent to said adjusting, providing a second substrate and performing acts of providing a projection beam of radiation using a radiation system, using patterning structure to endow the projection beam with a pattern in its cross-section, and projecting the patterned beam onto a target portion of a layer of radiation-sensitive material on the second substrate.